

Digital Output Module Relay Ex nA Outputs, 8 Channels for Zone 2 / Div. 2

Series 9477/15



- > 8 channels with output: volt-free relay contact, normally open
- > Outputs Ex nA (non-sparking)
- > Galvanic separation between outputs and system
- > Module can be replaced in operation (hot swap)



09893E00

A4

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The Digital Output Module Relay is used for the control of non-intrinsically safe solenoid valves or indicators. Each output is an individual volt-free “normally open” contact per channel. The interface of the Digital Output Module with the internal data bus of the BusRail is designed with redundancy.



	ATEX / IECEx						NEC 505						NEC 506						NEC 500					
	0	1	2	20	21	22	Zone	0	1	2	20	21	22	Division	1	2	1	2	1	2	Class I	Class II	Class III	
Ex interface			x			x	Ex interface			x			x	Ex interface	x									
Installation in			x			x	Installation in			x			x	Installation in	x									

WebCode 9477B

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Selection Table

Version	Description	Order number	Weight kg
Digital Output Module Relay	8 channels with output: volt-free relay contact, normally open	9477/15-08-12	0.321
Note		Please order terminal separately - see Accessories	

Explosion Protection

Global (IECEx)	
Gas	PTB 06.0001X Ex nA nC nL [ib] IIC T4
Europe (ATEX)	
Gas	PTB 01 ATEX 2187 Ⓢ II 3 (2) G Ex nA nC ic [ib Gb] IIC T4 Gc
Certifications and certificates	
Certificates	IECEx, ATEX, Brazil (INMETRO), Canada (CSA), Kazakhstan (GOST K), Russia (GOST R), Serbia (SRPS), USA (FM), Belarus (operating authorisation)
Ship approval	ABS, BV, ClassNK, DNV, GL, LR, RS
Further parameters	
Installation in	Zone 2 / Division 2; Zone 22
Further information	see respective certificate and operating instructions

Technical Data

Electrical data				
Ex nA outputs				
Number of channels	8			
Contact	NO			
Maximum switching voltage	250 V AC	30 V DC	110V DC	220 V DC
Maximum switching current	2 A	2 A	0.3 A	0.12 A
Maximum switching capacity	100 VA	60 W	33 W	26 W
Minimum switching voltage	5 V AC / DC			
Minimum switching current	2 mA			
Service life				
electrical	at max. 2 A			
AC 1 - load	≥ 0.6 x 10 ⁶ switching cycles			
DC 1 - load (resistive load)	≥ 100 x 10 ³ switching cycles			
mechanical	≥ 10 x 10 ⁶ switching cycles			
Maximum contact load without damage to gold plating	at 24 V / 1.5 W			
Safe contact operation with damaged gold plating	from 12 V / 1.5 W			
Connections	2.5 mm ² flexible			
Galvanic separation				
between power supply and system components	1500 V AC			
between two input / output modules	500 V AC			
between inputs and system components	375 V AC			
Outputs interconnected	250 V AC			

Technical Data

Electrical data

Characteristic values

Maximum signal delay from internal bus to outputs 10 ms

Settings

Safety position (output with communication error) ON, OFF, hold last value

Retrievable parameters Manufacturer, type, version, serial number

Diagnostics

- Module faults
- Internal primary bus faults
 - Internal redundant bus faults
 - No response
 - Module does not correspond to configuration
 - Hardware fault

Operator interface

Operation LED green "RUN"

Fault LED red "ERR"

Auxiliary power

Behaviour during undervoltage Output = OFF

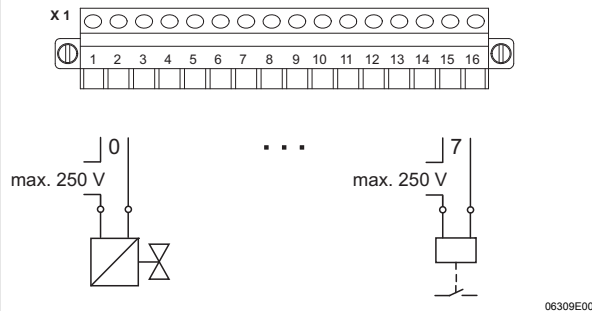
Maximum power consumption 4.8 W

Maximum power dissipation 4.8 W

Electrical connection

Ex nA / NI field signals Plug-in terminals 16-pole with catch, 2.5 mm² / up to 14 AWG, screw or spring type

Connection diagram



Ambient conditions

Ambient temperature -20 ... +65 °C

Storage temperature -40 ... +70 °C

Maximum relative humidity 95 % (no condensation)

Sinusoidal vibration (IEC EN 60068-2-6) 1 g in frequency range between 10 ... 500 Hz
2 g in frequency range 45 ... 100 Hz

Semi-sinusoidal shock (IEC EN 60068-2-27) 15 g (3 shocks per axis and direction)

Electromagnetic compatibility Tested according to the following standards and regulations:
EN 61326-1 (1998) IEC 1000-4-1...6, NAMUR NE 21

Mechanical data

Module enclosure Polyamide 6GF

Fire resistance (UL 94) V2

Degree of protection (IEC 60529)

Modules IP30

Connections IP20

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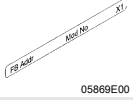
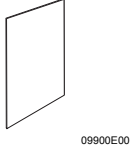



Technical Data

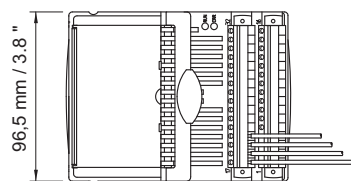
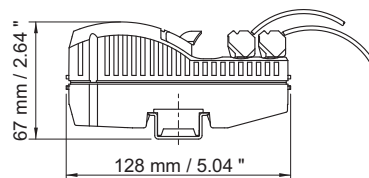
Mounting / Installation

Installation conditions	on 35 mm DIN rail NS 35/15
Mounting type	horizontal and vertical
Mounting orientation	horizontal and vertical
Engineering notes	<ul style="list-style-type: none"> The module is intended for I.S. 1 field stations and may only be installed in Zone 2 / Division 2 or in the safe area. For use in Zone 2, an enclosure with degree of protection of at least IP54 is required. The module is plugged onto the BusRail of the I.S. 1 system. It is recommended to position the module 9477/15 next to the CPM (9440). In order to maintain the distance of ≥ 50 mm / 2 in to the connection terminals of the I.S. module, a partition (162740) is required. Non-intrinsically safe circuits may be connected to the module, provided that the maximum values of current, voltage and power (refer to technical data) are adhered to. The switching current of the contacts must be limited to 2 A (e.g. fuse or current limitation).

Accessories and Spare Parts

Designation	Figure	Description	Art. no.
Plug-in terminal		2.5 mm ² with screw lock, 16-pole, screw connection, black, for connecting the field signals to I/O modules, for non-intrinsically safe field circuits Attention: Only for I/O module 9477/15 Version with warning sign Labelling: 1 ... 16	162704
		2.5 mm ² with screw lock, 16-pole, spring connection, black, for connecting the field signals to I/O modules, for non-intrinsically safe field circuits including test jacks Attention: Only for I/O module 9477/15 Version with warning sign Labelling: 1 ... 16	162706
Labelling strips		"FB Addr ... Mod No ..." for pluggable terminal, sheet with 26 strips	162788
DIN A4 sheet		For label plate on I/O modules; 6 labels on each sheet; print-out using IS Wizard; packaging unit = 20 sheets	162832
Partition		For assembly between intrinsically safe and non-intrinsically safe connectors of the I/O modules, in order to adhere to the required 50 mm distance	162740

Dimensional Drawings (All Dimensions in mm / inches) - Subject to Alterations



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We reserve the right to make alterations to the technical data, dimensions, weights, designs and products available without notice. The illustrations cannot be considered binding.